

throughout the island of Great Britain as long ago as the year 1843. When the railways demanded uniform time, and Greenwich time was adopted. France also has a uniform standard. But the continent of North America covers too many degrees of longitude to permit of the use of any one meridian as a single hour standard for all points between the two oceans. Under such a system there would be points where local time would differ from standard time by about two hours.

V. *The new system* divides the United States into four sections. At all places in the same section time is the same. The first section, which is governed by the time of the 75th meridian west from Greenwich, embraces all the territory between the Atlantic coast and Detroit, Pittsburg, Wheeling, Parkersburg, Huntington, Bristol, Augusta, and Charlestown, as indicated on the accompanying map (see next page). This is called *Eastern Time*. At 12.0 mid-day on the 75th meridian every clock and time-ball, from Calais to Pittsburg and from Quebec to Charlestown, indicates the hour of noon.

The second section is governed by the time of the 90th meridian, called *Central Time*. It includes all the territory from the western limits of the eastern time (that is, from Detroit, Pittsburg, Augusta, &c.) to Bismark, North Platt, Dodge City, &c. Time in this section is one hour slower than eastern time.

The third section extends from the last-named places westward to Heron (Montana), Ogden (Utah), the Needles (Arizona), &c. Time in this section is that of the 105th meridian (one hour slower than central time), and is denominated *Mountain Time*.

VI. At 12.0 noon in New York City the time at Chicago is 11 a.m., at Denver 10.0 a.m., and at Portland (Oregon) 9.0 a.m. By the old system at 12.0 noon in New York it was 11.05 in Chicago, 9.56 in Denver, and 8.46 in Portland.

VII. The adoption of a uniform standard of time by the railway lines has led to the *abandonment of local time* in nearly all the cities of the United States. The time of the 75th meridian was selected as the standard for the district of Columbia by Act of Congress, approved March 13, 1884.

It is encouraging to learn that, as was to have been expected, local time throughout the United States, as opposed to railway time, has already been abolished, and it is to be hoped, for the benefit of railway travellers on this side of the Atlantic, that the continent of Europe, from the extreme west of Spain to the Caspian, will soon be dealt with in the same manner.

NOTES

WE regret to state that Prof. Benjamin Silliman, of Yale College, died at Newhaven on the 13th inst., aged sixty-eight.

THE death is announced of Prof. Friedrich von Stein, at Prague, at the age of 67. He was appointed Professor of Zoology and Zootomy of the Prague University, an office which he occupied for thirty years.

THE death is also announced, at the age of fifty years, of Col. Roudaire, whose name is intimately associated with the project of a Saharan Inland Sea. Although strongly supported by M. de Lesseps, the scheme was opposed by the great number of competent scientific authorities. With the death of Col. Roudaire the scheme will probably fall to the ground.

THE Vice-Chancellor of Cambridge has appointed Mr. George John Romanes, M.A., F.R.S., to the office of Sir Robert Rede's lecturer for the ensuing year.

THE Royal Academy of Turin announces the foundation of a prize of the value of 12,000 francs for the most useful and striking discovery in anatomy, physiology, pathology, the exact

sciences, history, geography, or statistics. The period within which the work must be done or the discovery made is from 1883 to December 31, 1886. Members of the Royal Academy or the Academy of Science in Turin are ineligible for the prize, the judges for which will be the Academy of Sciences of Turin.

THE Academy of Sciences, Berlin, announces the following subject for a prize of 2000 Marks, which, if sufficient merit be shown, will be awarded on the Leibnitz Anniversary in 1887:—
“A determination of the nature of the primary assimilation-products of carbon-dioxide in plants; to be based upon suitable experiments and chemical investigations into the process in plants, when exposed to the influences of light; as well as upon direct histological demonstrations of the form it assumes in the tissues of the plant. The first form assumed by the assimilation-product is to be distinguished from the succeeding ones which the substance passes through in the metabolism of the cell. The chemical formulæ are also to be given. It will be considered an approximation to the solution of the question, if, by going over the work that has been done already on this subject, it shall be shown by an accurate series of observations and experiments that the present theories concerning the process of assimilation in plants and the primary organic product of this process, are susceptible of a wider extension, or that they require to be limited by important qualifications.” Essays may be written in German, Latin, French, English, or Italian, and must be forwarded before January 1, 1887.

FROM subsequent information with regard to the accident to Dr. Divers, Principal of the Imperial College of Engineering, Tokio, it appears that he had taken in his hand a bottle supposed to contain perchloride of phosphorus, but, finding the stopper fast, was heating the neck to release it, when it burst, the bottle disappearing as dust, and the contents as gas. Dr. Divers was nearly suffocated by the fumes, and one eye was injured. When the last mail left, it was not in a state to be critically examined; but strong hopes are entertained that the sight will be restored. The accident is supposed to be due to the decomposition of the perchloride of phosphorus, which was old. Dr. Divers was at work on a paper on the theory of acids when the accident occurred.

THE undertaking to transport a whole Japanese village, with its shops, houses, and inhabitants, half round the globe to London, was a somewhat bold one for a private individual. But it has been performed with great thoroughness and success in the case of the Japanese village now on view at Knightsbridge. The houses are new and clean, which the tenements of Japanese villages always are not; the small temple or shrine is rather more cleanly and ornamental than is usual with these structures in real life; the wrestlers do not exhibit the physical characteristics which are so conspicuous, not to say disgusting, in the real Japanese wrestler; and their methods of refreshing themselves between the bouts are more in accordance with European tastes. But, on the whole, home-loving English people have now an opportunity of seeing the Japanese at home, which they can never have without a journey to Japan itself. There is very little to note in the exhibition from a scientific point of view; the inhabitants are fair average specimens of Japanese artisans and shopkeepers, so that the ethnologist will have a good opportunity of comparing his notions gathered from Miss Bird and other writers of the Japanese people with the reality. He can, in a measure, study the racial characteristics of the Japanese *in situ*.

THE Spanish earthquakes have continued to manifest themselves at intervals during the past week in the same area as that in which they first appeared. In connection with this phenomenon, the following extract from the report of the meeting of

the Spanish Natural History Society of January 7, 1885, has been forwarded to us from Madrid for publication:—Mr. Joseph Macpherson made the following remarks on the earthquakes in Andalusia:—"The earthquake which took place in the peninsula on the night of December 25 last, and which cannot yet be said to have ceased, has assumed a character of such intensity, and presents in its action such marked coincidences with the geological structure of this part of the world, that I think it will be interesting to enter into some detail with regard to the principal conclusions to be deduced from that phenomenon. Taking the whole peninsula, the disturbance may be divided off into three successive phases, viz.: one of relatively slight importance which occurred in the early morning of December 22, and which was confined to the western portion of the country, its effects being felt only in Galicia and Portugal; another, of the highest importance, which occurred three days later, namely, at 9 p.m. on the 25th of that month; while the third phase includes the oscillations which have taken place, and are still taking place, in the districts most severely affected by the earthquake of the 25th. That earthquake extended over a very considerable surface, the district affected to an appreciable degree including approximately, it would seem, the whole country lying between Cadis and Cape de Gata and between Malaga and the Carpathian range. According to all the data known to us so far, the oscillations gained in intensity as they proceeded southwards from those mountain ranges, reaching their maximum of motion in the region lying between the mountains of Ronda and the Sierra Nevada. The shock was quite perceptible at Madrid, where it was strong enough to stop a few clocks and ring a few bells. The movement was apparently that of a pendulum, and its direction was from north to south. Two successive oscillations were observed separated by an interval of from three to four seconds, and each oscillation lasted from two to three seconds. The movement gained in intensity, as I have said, as it proceeded southwards, more especially after leaving the southern border of the central tableland limited by the fault of the valley of the Guadalquivir. Now, the interest of the phenomenon lies in the coincidence observable between its various manifestations and the geological structure of the peninsula. To make this clear, let me be permitted to offer a few observations on the subject of that geological structure. The archaic formations of the peninsula, with rare exceptions, lie in folds and faults running with singular consistency from south-west to north-east, and as an instance of this peculiarity I may mention the Carpathian range, which crosses the peninsula from east to west. After these archaic disturbances the Cambrian and Silurian deposits were likewise in their turn crumpled up into folds. These, however, run from north-west to south-east, that is to say, in a direction which forms almost a right angle to the earlier archaic folds. Concurrently with this general crumpling of the lower Palæozoic strata, there appeared in a broad zone great masses of granite, porphyry, diabase, and other kinds of rocks, which cross the peninsula from Galicia to the valley of the Guadalquivir, and which, geologically speaking, divides the peninsula into two distinct parts. This huge belt, which may be regarded as one of the most striking features of the peninsula of our day, cuts and divides the archaic formations, as this may be perceived at once in the central Carpathian range itself, which is interrupted between the Sierra de Gata and the Estrella range in Portugal. A study of the Mediterranean watershed of Andalusia will show the existence of two great mountain masses, chiefly formed of archaic deposits. One of these is known by the name of the Serrania de Ronda, and the other by that of the Sierra Nevada. Both run in a series of folds and faults from south-west to north-east, and between them there lies an interval filled up with palæozoic, secondary, and tertiary deposits. Towards the middle of this interval there

rises up, like an island in the midst of these later deposits, a series of ridges running from north-west to south-east, and formed of archaic rocks. They are known by the name of the Sierra Tejea and Sierra Almjara, and the folds of these ranges, as in the case of the other archaic formations, run from south-west to north-east. It is clear, therefore, that this intermediary mountain mass is a segment of a more considerable archaic formation, separated from adjacent rocks through the subsidence of the ground on both sides. Owing to constant oscillations, this detached portion has been covered with the thick mantle of sediment which now overlays it, and its structure is easily accounted for as the result of that great fracture which crosses the peninsula from north-west to south-east, in the prolongation of which lies the region I am now describing. This fracture does not evidently end in the valley of the Guadalquivir, and though the surface be covered over by later deposits, it apparently extends to the country lying between the archaic mountain masses of the Serrania de Ronda and the Sierra Nevada, which it divides from one another, and whose ancient unity is testified by the Sierras Tejea and Almjara. The two principal coincidences observable between the phenomena of the earthquake and the geological structure of the peninsula are:—(1) That the disturbance of December 22 was confined to the regions lying to the west of the zone above described; and (2) that the most violent shocks of the earthquake of December 25 were experienced in the region intervening between the Sierra Nevada and the Serrania de Ronda, and precisely on the very belt which incloses the archaic mountain mass of the Sierras Tejea and Almjara. That part of Andalusia, broken and torn by the secular disturbances of our globe, has proved naturally the weakest, and has, therefore, been the most exposed to the shocks from which Andalusia has so terribly suffered. There stood Alhama, now prostrate in the river bed; there, Periana, a heap of ruins 3 m. high; there Albuvelas, which exists no longer; there Zafarraya, Nerja, Torrox, and many other towns and villages; all testifying to the fragility of those faults, which though dating back to the Silurian period, are still apparently not completely welded.

MR. G. JOHNSTONE STONEY, F.R.S., Vice-President of the Royal Dublin Society, will give a discourse at the Royal Institution on Friday evening, February 6, on "How Thought presents itself in the Phenomena of Nature"; and on the following day (Saturday) he is to begin a course of three lectures upon the "Scale on which Nature works and the Character of some of her Operations." The following are the titles of the three lectures:—"Operations of Nature carried out on a Great Scale"; "Operations which go on between Molecules"; and "Operations which go on within Molecules, and the more Subtile Operations of Nature."

ACCORDING to *Science*, about 10 per cent. of the plants collected in the North-Western Mexican States by recent collectors prove to be new species.

MAY we suggest to the authorities of the British Museum the desirability of taking some means of letting the public interested in the matter know some little time beforehand when those lectures are to be delivered which are so regularly reported in the *Times*, but of the arrangements for which no one seems to know anything?

DR. J. A. FLEMING is about to give, at University College, Gower Street, a course of lectures on "Modern Applications of Electricity in the Arts." The lectures will be interspersed with practical demonstrations.

THE Electrical Exhibition, which was to take place at the Paris Observatory in the beginning of January, has been postponed to March 19.

THE thirty-eighth annual general meeting of the Institution of Mechanical Engineers will be on January 29 and 30, at 25, Great George Street, Westminster, by the kind permission of the Council of the Institution of Civil Engineers. The chair will be taken by the President at half-past seven p.m. on each evening. The following reports and papers will be read and discussed, as far as time will admit:—Final report on experiments bearing upon the question of the condition in which carbon exists in steel, by Sir Frederick Abel, C.B., D.C.L., F.R.S.; second report of the research committee on friction; on recent improvements in wood-cutting machinery, by Mr. George Richards, of Manchester; on the history of paddle-wheel steam navigation, by Mr. Henry Sandham, of London; description of the Tower spherical engine, by Mr. R. Hammersley Heenan, of Manchester.

THE Dutch Government have issued the first part of their official report on the Krakatoa eruption. It deals with the history of the island prior to the occurrence, and the events of the catastrophe itself. The second part will deal with the scientific results of the investigation. The editor examined 1300 reports of eye-witnesses, and has endeavoured from them to construct a chronological statement of the events preceding and accompanying the eruption.

THE list of the conferences of the Sorbonne has been published for this year. On January 24 Dr. Brouardel lectures on the epidemics and protective measures; February 7, classification of celestial bodies according to their nature, by M. Faye; February 21, application of recent advances in physics to public works, by M. Gariel; March 14, architecture of the heavens, by M. Wolf; April 9, great volcanic catastrophes, by M. Velain.

WE are requested to state that Dr. William Pole, F.R.S., has been appointed Honorary Secretary of the Institution of Civil Engineers in the room of the late Mr. Charles Manby. The office of Secretary is filled, as formerly, by Mr. James Forrest. Mr. H. L. Antrobus has been re-appointed Treasurer.

MOST of the inhabitants of Leden, the *Standard* states, about a mile from Colchester, were awakened shortly after midnight on Sunday by what they believe to have been an earthquake. Much alarm was occasioned. The shock occurred at half-past twelve o'clock, and lasted about thirty seconds. The houses shook and the crockery rattled, but the shock was nothing like so severe as the one experienced last April. The shock seems to have extended as far north and east as Aldeburgh.

SEISMIC activity appears to have been exceedingly widespread recently. In the middle of November the first earthquake in ten years occurred at Monkden, in Manchuria. Both shocks, the present and one ten years ago, came from the same direction, viz. north-west to south-east, which, it is curious to note, is not the prevailing direction of the hill ranges, but at right angles to it. The Chinese in Manchuria are persuaded that warning of approaching earthquakes is given by the Koreans to the Chinese Government, and that the shaking of the earth is caused by the yawning of the great fish, on which the globe reposes.

It is reported from Sundal and Öxendal, on the west coast of Norway, that a severe shock of earthquake was felt there at about 7 a.m. on December 28. The shock was so violent that the houses shook, and the people ran out terrified. It was impossible to tell in what direction the shock went. This phenomenon is remarkable for two reasons, viz. that it hardly ever occurs in Norway, and that it occurred on the day after the terrible earthquakes in Spain.

THE prospectus has been issued of the *American Journal of Archaeology*. The Archaeological Institute of America has recognised the *Journal* as its official organ. Among the specific

objects of its editors will be:—(1) To afford to American scholars the means of taking active part in the progress of archaeological science by the publication of papers embodying the results of original research; (2) To provide a careful and ample record of archaeological discoveries and investigations in all parts of the world, and to furnish reports of the proceedings of archaeological societies, summaries of important papers, reviews of books, &c.; (3) To bring to notice and to illustrate important works in the domain of archaeology contained in our public museums and private collections, now little known. The following is a list of the editorial staff, so far as at present formed:—Advising Editor: Prof. Charles Eliot Norton, of Harvard College; Managing Editor: Dr. A. L. Frothingham, of Johns Hopkins University; Special Editors: Dr. A. Emerson, of Johns Hopkins University, Mr. T. W. Ludlow, of New York, Prof. Allan Marquand, of Princeton College, Mr. A. R. Marsh, of Harvard College, Mr. Charles C. Perkins, of Boston. The *Journal* will be published four times a year, and the numbers for each year will form an 8vo volume of about 360 pages. Messrs. Trübner and Co. will be the English agents.

AT Königsberg, in Prussia, will take place during the months of May to August of this year an International Industrial and Polytechnic Exhibition for machinery, motors, tools, appliances for mechanics, small manufacturers, &c. The following are some of the heads of groups under which exhibits will be classified—viz. (1) motors; (2) transmission appliances; (3) tools and implements for all branches of manufacture; (4) chemical and physical apparatus; (5) apparatus for technical education; (6) safety and protective appliances; (7) machinery and appliances for household purposes and for innkeepers; (8) agricultural implements and appliances. The Exhibition takes place under the authority of the Industrial Central Union of the province of East Prussia. Dr. N. Heinemann, of the new Athenæum Club, 3, Pall Mall East, has been appointed Special Commissioner of the Exhibition for England, and will give all necessary information to intending exhibitors.

THE annual meeting of the Association of Assistant Mistresses, which is confined to mistresses in girls' high schools, endowed, and proprietary schools, was held on Saturday at the North London Collegiate School for Girls. The President, Mrs. Hankin, of the Edgbaston High School, Birmingham, was in the chair. The discussion of the rules of the Association occupied a large proportion of the time. The Secretary's report showed that the work of the past year (the first of the Association's existence) had been chiefly that of organisation, whilst the Treasurer's report gave a hopeful account of the finances of the institution, there being a considerable balance in hand. It was resolved to appoint foreign and colonial correspondents, whose duty it should be to inform the Association of openings abroad, and a home correspondent, to whom assistant mistresses might apply, and to whom notices of vacancies might be sent. A plan for a lending library, to consist chiefly of voluntary loans of books, was approved, and a sub-committee was appointed to carry it into effect. A hope was expressed that publishers might be induced to present copies of educational works, and that any friends to the Association, leaving England for a time, might grant the use of their books during their absence. Mrs. Bryant, D.Sc., was elected President for the coming year. After the conclusion of business, the meeting proceeded to the discussion of papers on educational subjects. Miss Sharpe of Bradford read a paper on the training of teachers. Several papers were also read on the correction of exercises, describing the systems obtaining at different schools. It is from the discussion of such papers that the Association anticipates practical results: by their means, ideas are circulated that would otherwise remain unknown to the majority, and hints given by which all interested in their

work will profit. Papers on educational subjects will be read at the spring meeting, which is to take place in the middle of April at the Girls' Grammar School, Bradford.

OLD residents of the California peninsula have noticed several varieties of birds near the sea coast that they have never before known to leave the mountains. This is supposed to indicate a severe winter, but the migration is more probably due to the prevailing scarcity of all kinds of seeds in the mountains this season.

ACCORDING to the report of the captain of a vessel which in December returned from Eskefjord, on the east coast of Iceland, showers of ashes fell on Eastland early in November. The deck of the ship was covered with a thin layer of ashes, probably caused by a volcanic eruption inland.

MR. W. HEWITT, Science Demonstrator to the Liverpool School Board, writes to us with reference to the "Itinerant" method of science teaching. The special instruction is, in Liverpool, he states, commenced with the children in the fourth standard, and by this means deals with more than double the number of children who would be included were the commencement deferred until the fifth standard, as appears to be the case in Birmingham. There is every reason to believe, Mr. Hewitt thinks, that the preliminary instruction in the fourth standard is a very important part of the intellectual training which it is the object of the system as a whole to give. The stages of instruction in each subject are kept quite distinct throughout, and are always taken in the same order. The children on commencing the subject take up the first stage, and proceed in the following year to the second stage, and so on through a systematic and carefully-graduated three (or four) years' course of instruction in elementary science.

THE hatching of lobster and fish is making great progress in Norway. Thus, last year the Association for the Promotion of the Norwegian Fisheries hatched 7,000,000 fish, chiefly cod and haddock, at their establishment of Arendal, in the Christiania fjord, and this winter between 50,000,000 and 60,000,000 more will probably be turned out. The experiments, which were made of placing the ova of lobster in hatching apparatus, have been attended with great success, and show that they may be turned out by the million in this manner. As private enterprise cannot be expected to undertake these operations from year to year on a large scale all along the coast, the Association have petitioned for Government support, which will, it is expected, be readily forthcoming, as the Norwegians now clearly see of what enormous benefit to the nation these operations are.

MR. NEWALL asks us to state that in his note on "The Jeannette Drift" (vol. xxxi. p. 102), the word *knots* should be *nauts*, a *naut* being a geographical mile of 60 to a degree. It is a much more convenient measure than the mile of 1760 yards, for it contains 1000 fathoms, or ten cables of 100 fathoms each, as used in the navy. It is the only decimal measure used in any Government department! *Knot* is a mark on a line used on board ship, having the same proportion to a *naut* which a half-minute glass has to an hour, or the $1/120$ th part of a *naut*; so, when 10 knots pass out during one turn of the glass, the sailor means that the vessel is passing through the water at 10 nauts an hour.

THE additions to the Zoological Society's Gardens during the past week include a Golden Eagle (*Aquila chrysaetos*) from Sutherlandshire, presented by Col. E. D. Hunt; a Crossbill (*Loxia curvirostris*), British, presented by Mr. C. Skegg; seven Bramblings (*Fringilla montifringilla*), two Chaffinches (*Fringilla caelebs*), a Tree Sparrow (*Passer montana*), a Black-headed Bunting (*Emberiza melanocephala*) from Norfolk, presented by Mr. T. E. Gunn; a Nilotic Crocodile (*Crocodilus vulgaris*) from Africa, presented by Mr. H. E. Cree; a Brush-tailed Kangaroo

(*Petrogale penicillata* ♂) from New South Wales, a Golden-crowned Conure (*Conurus aureus*) from South-East Brazil, deposited; two Striated Tanagers (*Tanagra striata*) from Buenos Ayres, two Siskins (*Chrysomitris spinus*), British, purchased; a Virginian Fox (*Urocyon virginianus*) from North America, received in exchange.

OUR ASTRONOMICAL COLUMN

COMETS OF SHORT PERIOD. (1) ENCKE'S COMET.—The following ephemeris of this comet for February is founded upon Dr. Backlund's elements, which the January observations show to be very exact:—

At 6h. Greenwich Mean Time

1885	R.A.	Decl.	Log. distance from Earth	Log. distance from Sun
h. m. s.				
Feb. 1 ... 23 33 0 ... +6 32'4				
2 ... — 34 31 ... 6 38'6 ... 0'0884 ... 9'9279				
3 ... — 36 3 ... 6 44'7				
4 ... — 37 35 ... 6 50'7				
5 ... — 39 8 ... 6 56'4				
6 ... — 40 40 ... 7 2'1 ... 0'0705 ... 9'8901				
7 ... — 42 13 ... 7 7'5				
8 ... — 43 45 ... 7 12'7				
9 ... — 45 17 ... 7 17'5				
10 ... — 46 49 ... 7 21'9 ... 0'0490 ... 9'8478				
11 ... — 48 20 ... 7 25'8				
12 ... — 49 50 ... 7 29'2				
13 ... — 51 18 ... 7 31'9				
14 ... — 52 44 ... 7 33'9 ... 0'0233 ... 9'8003				
15 ... — 54 7 ... 7 34'9				
16 ... — 55 26 ... 7 34'9				
17 ... — 56 41 ... 7 33'7				
18 ... — 57 52 ... 7 31'1 ... 9'9924 ... 9'7470				
19 ... — 58 57 ... 7 26'9				
20 ... 23 59 54 ... 7 20'7				
21 ... 0 0 42 ... 7 12'4				
22 ... — 1 20 ... 7 1'4 ... 9'9555 ... 9'6881				
23 ... — 1 46 ... 6 47'5				
24 ... — 1 57 ... 6 30'1				
25 ... — 1 51 ... 6 8'9				
26 ... — 1 25 ... 5 43'2 ... 9'9123 ... 9'6263				
27 ... 0 0 36 ... 5 12'4				
28 ... 23 59 22 ... +4 35'0				

(2) BARNARD'S COMET.—Dr. Berberich, of Berlin, has made a new determination of the orbit of this comet from three normal positions deduced from observations extending over a period of three months. The sidereal revolution is now found to occupy 1958'9 days, or 5'363 years. In heliocentric longitude $343^{\circ} 40'$, the distance of the comet from the orbit of Mars is only 0'0079, and a revolution but slightly differing from that obtained by Dr. Berberich would have caused a very close approach of the two bodies as lately as the end of 1873 or beginning of 1874. The distance of the comet at aphelion from the orbit of Jupiter is 0'572. As previously remarked, much interest attaches to this comet from the similarity of the elements of its orbit to those of "the lost comet of De Vico," observed in the autumn of 1844.

(3) WOLF'S COMET.—Dr. Tempel, writing from Arcetri on the 4th inst., describes this comet as being still "sehr hell mit leicht zu beobachtendem Kerne." Considering that accurate observation commenced on September 20, the mean motion may be expected to be pretty exactly defined by the observations at this appearance, and the comet's orbit previous to the near approach to the planet Jupiter in 1875 may be investigated, with probability of a reliable result, without waiting for observations at its next return to perihelion in 1891.

GEOGRAPHICAL NOTES

THE *Bulletin de la Société de Géographie* for the last quarter of 1884 is largely occupied with the geography of the Far East. Two members of the foreign mission body communicate papers on Tonquin, both accompanied by maps. Père Pinabel writes on some "savage peoples" dependent on Tonquin. The expression "savage" is explained to mean nothing more than mountaineers. The tribes here described inhabit the mountains of the province of Thague-hoa, between the rivers Maa and Chou, which is the most southern province of the delta of the Red